

DEVELOPMENT



ADOPTION

COMPLIANCE

*Be a part of the **Energy Solution**
with **Building Energy Codes**.*



Efficient Codes. Efficient Buildings. Greater Benefits.

As our country continues to focus on saving energy and reducing emissions in the face of global climate change, it is turning to the building sector for viable solutions. The effects of energy use in residential and commercial buildings are nationwide, worldwide and varied. In the U.S. alone, residential and commercial buildings account for 40 percent of all energy consumption and 70 percent of electricity usage.

Energy use fundamentally impacts the economic well-being of the nation, the U.S. dependence on foreign oil, and national security.

The U.S. Department of Energy's (DOE) Building Energy Codes Program (BECP) is the central information resource on national energy codes by working with other government agencies, states and local jurisdictions, national code organizations, and the building industry to promote stronger building energy codes and standards. In addition, the BECP helps states adopt, implement, and enforce building energy codes.

The adoption and enforcement of more energy efficient building energy codes and standards in communities across the country are critical components to curbing the significant and ever-growing impacts of building energy use.

Estimates show that combined impacts of the BECP will result in 1.7 quadrillion Btu saved annually by 2030. Cumulative savings from 2009 to 2030 are estimated at over 14 quadrillion Btu. These numbers translate into an estimated cumulative CO₂ savings by 2030 of 800 million metric tons.

BEYOND CODES FOR SUSTAINABILITY: Building on a Strong Foundation

Green building codes go beyond the energy codes, raising the bar for energy efficiency. Initially serving as a proving ground, green building programs eventually make transformative efficiency improvements in both the residential and commercial building marketplace.

BECP offers comprehensive support directly to states and local jurisdictions seeking adoption or compliance assistance with a variety of green building programs at no cost.

The innovative use of improved technology in buildings and increasing need for energy code experts, as well as project retrofits and building weatherization, will create job opportunities around the nation.

Residential VISION

50/70/90 RESIDENTIAL VISION

In **BECP's continued efforts** to reduce the energy consumption of the U.S. residential buildings, it will focus on the following:

- **Increasing energy savings by 50%** with more efficient residential building codes development by 2015.
- **Developing a comprehensive adoption strategy** that will enable **70%** of the states to adopt the 2009 International Energy Conservation Code (IECC) for residential buildings by 2015.
- **Achieving 90% compliance** with the 2009 IECC nationwide by 2017.

RESIDENTIAL CODE DEVELOPMENT

DOE is committed to reducing the energy use of residential building components by improving efficiency of the IECC by 50% compared to the 2006 IECC. Due in part to **BECP's** contributions, the 2012 IECC is estimated to be at least 30% more energy efficient than the 2006 IECC, positioning BECP's residential team on its way toward its **50% goal** through transparent and collaborative approaches.

Federal law requires DOE to determine whether each revision to the residential portion of the IECC would improve energy efficiency in the nation's residential buildings.

- When DOE determines that a revision would improve energy efficiency, each state has two years to review the energy provisions of its residential building energy code
 - A state has the option of revising its residential code to meet or exceed the residential portion of the revised IECC

For more information on how the IECC is developed, please visit: www.iccsafe.org.

Commercial VISION

50/70/90 COMMERCIAL VISION

In **BECP's continued efforts** to reduce the energy demand growth of the U.S. commercial buildings, it will focus on the following:

- **Increasing energy savings by 50%** with more efficient commercial building codes development by 2015.
- **Developing a comprehensive adoption strategy** that will enable 70% of the states and territories to adopt ASHRAE Standard 90.1-2007 for commercial buildings by 2015.
- **Achieving 90% compliance** with ASHRAE Standard 90.1-2007 nationwide by 2017.

COMMERCIAL CODE DEVELOPMENT

DOE worked with ASHRAE to achieve the goal of **30%** improvement between Standard 90.1-2010 and 90.1-2004. Currently, **BECP** is working toward achieving the new goal of **50%** improvement in Standard 90.1-2013 over 90.1-2004.

Federal law requires DOE to determine whether each revision to Standard 90.1 would improve energy efficiency in the nation's commercial buildings.

- When DOE determines that a revision would improve energy efficiency, each state has two years to review the energy provisions of its commercial building energy code
 - A state is required to update its commercial code to meet or exceed the provisions of the revised Standard 90.1

For more information on how Standard 90.1 is developed, please visit: www.ashrae.org.

ADOPTION Process

ADOPTION OF ENERGY CODES ON THE STATE AND LOCAL LEVEL

Adoption can occur directly through legislative action or by regulatory action through agencies authorized by the legislative body to oversee the development and adoption of codes/standards.

- **By legislation** – A committee may be appointed to provide recommendations and/or draft the legislation
- **By regulatory process** – States and local governments often appoint an advisory panel comprising representatives of the design, building construction, and enforcement communities

TIMING THE ADOPTION AND REVISION OF STATE AND LOCAL CODES

Most states adopt or revise energy codes in concert with the publication of a new edition of the national energy standard or code. Some states will:

- **Adopt or revise energy codes** in concert with the publications schedule for IECC and 90.1
- **Automatically adopt** “the most recent edition” without any formal action needed

Other states review the new editions on a case-by-case basis to consider adoption, without a designated timeline for adoption.

BECP engages states and jurisdictions throughout the adoption process to provide them with technical assistance and the support needed to ensure the codes adopted can be readily implemented and enforced, including:

- **Providing advocacy support** through the Building Codes Assistance Project (BCAP) www.bcap-ocean.org;
- **Tracking the Status of State Codes** by providing current information regarding the status of state energy codes on www.energycodes.gov, including identification of codes adopted by each state as well as state-specific, code related administrative and technical information; and
- **Developing and delivering** state-specific resources.



Compliance

STATE TECHNICAL ASSISTANCE

Over the years, **BECP** has provided an array of assistance to state energy organizations to support compliance with both residential and commercial building energy codes/standards, including technical analyses, training, and development of software tools.

Upon request and with DOE approval, BECP staff can provide specialized technical assistance to states, including economic analyses, code comparisons, webcast training, and state-specific compliance resources to help states adopt, upgrade, implement, and enforce their building energy codes/standards.

SOFTWARE TOOLS

One of the biggest challenges that states and jurisdictions face is affordable and accessible tools and resources. BECP's software helps stakeholders document and achieve energy code compliance. All of the BECP software applications can be accessed at www.energycodes.gov.

Residential Code Compliance: **REScheck**

REScheck™ and **REScheck-Web™** are code compliance software applications designed to simplify and clarify code compliance with the IECC and a number of state residential building energy codes. **REScheck's trade-off approach** allows users to consider several combinations of insulation levels, glazing U-factors, glazing areas and other envelope requirements that meet the requirements for each climate zone. Forms and checklists are provided for easy documentation of compliance.

Commercial Code Compliance: **COMcheck**

COMcheck™ and **COMcheck-Web™** are code compliance software applications designed to simplify and clarify commercial and high-rise residential energy code compliance with the IECC and Standard 90.1. **COMcheck** is a flexible application that can be used to demonstrate compliance for envelope, lighting, and mechanical systems. Forms and checklists are provided for documenting code compliance.

Score+Store™

Score+Store™ is an online web application that collects building evaluation data gathered as part of a formal, state compliance evaluation effort. The application scores the data (both individual building and state scores), and allows analysis of data collected across states.

EnergyCodeCheck™ Online Software

EnergyCodeCheck is a web-based software platform used to simulate the energy and cost savings impacts of code changes based on the same methodology currently used by BECP for generating code change proposals. The tool uses EnergyPlus simulations to allow states to compare code impacts, such as the expected energy savings from a proposed code, and to evaluate impacts of state amendments.

CODES CENTER OF EXCELLENCE

energycodes.gov is the gateway to all of BECP's no-cost educational and training resources for the energy codes community, including:

- **Training materials** for presenters
- **Events** – such as the Annual Energy Codes in-person training event information and registration
- **Technical support** – BECP staff respond to every inquiry
- **Code analysis** and code development information to compare the efficiency of different energy codes and identify potential code changes
- **Technical articles** and code notes to clarify code issues
- **Setting the Standard** newsletter, a key tool for information exchange among building professionals, state and local code officials, architects, designers, and engineers
- **Stakeholder-specific** resource guides

BUILDING ENERGY CODES UNIVERSITY (BECU) — RESULTS ORIENTED TRAINING

Are you new to the world of building energy codes?

A seasoned veteran? The Building Energy Codes University (BECU) offers comprehensive course topics that cover the entire spectrum of building energy codes at all levels (energycodes.gov/becu/full_catalog.stm). The training comes in a variety of formats and media types—from self-paced online training, to live webcast events, to tailored on-site training.

Start learning and see the results – visit BECU: energycodes.gov/becu/



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BECP Website:
energycodes.gov

BECP Technical Support:
energycodes.gov/help

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

EERE Information Center
1-877-EERE-INFO (1-877-337-3463)
eere.energy.gov/informationcenter



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Pacific Northwest National
Laboratory
PO Box 999--MSIN K6-52
Richland, WA 99352